DOCUMENT RESUME

ED 185 527 CS 005 394

AUTHOR Goetz, Ernest T.; Dixon, Karen M.
TITLE The Use of Context by Good and Poor Readers in a Cloze Task.
INSTITUTION Illinois Univ., Urbana. Center for the Study of Reading.
SPONS AGENCY Advanced Research Projects Agency (DOD), Washington, D.C.; National Inst. of Education (DHEW), Washington, D.C.
PUB DATE 79
CONTRACT 400-76-0018; N00-123-77-C-0622
NOTE 17p.; Paper presented at the Annual Meeting of the National Reading Conference (29th, San Antonio, TX, November 29-December 1, 1979).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Cloze Procedure; Comparative Analysis; *Context Clues; Discourse Analysis; Elementary Education; Grade 4; *Reading Ability; Reading Achievement; *Reading Comprehension; Reading Research; Sentences

ABSTRACT

A three-way mixed factorial design was used in a study of the ways good and poor readers used context in cloze tasks. Reading ability (good versus poor readers) and booklet format (sentence versus sentence fragment presentation) served as between-subject factors, while context (whole versus partial passage) served as a within-subject factor. Subjects were 78 fourth grade students whose reading achievement had been measured by the Stanford Achievement Test. All three main effects were found to be significant: good readers scored higher than poor readers; students with sentence booklets scored higher than those with sentence fragment booklets; and performance was better on whole passages than on partial passages. The results replicated findings by M. H. Neville and A. K. Pugh, showing that good readers were better than poor readers at utilizing the context provided by complete passages. Good readers gained much more from the intrasentence context afforded by the sentence booklets than did the poor readers. Surprisingly, the results suggested that poor readers made better use of intersentence context than good readers. When semantically acceptable responses were scored, however, intersentence context produced significant, nearly equivalent gains for both good and poor readers. (RL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED185527

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

The Use of Context by Good and Poor Readers in a Cloze Task

Ernest T. Goetz
Texas A & M University

and

Karen M. Dixon
Center for the Study of Reading
University of Illinois

Abstract

The image of the skilled reader which has recently emerged is that of a sophisticated problem solver who reads in a flexible, adaptive fashion. Neville and Pugh (1976-1977) provided evidence for this view in a study in which context utilization was measured by comparing performance on a cloze test in which the complete passage was available to the reader with performance on a cloze test in which context was restricted. They found that while good readers benefited substantially from the context provided by the passage, poor readers did no better with the complete than with the restricted context. While this finding is important, methodological difficulties with the study comlicate its interpretation. The study described was conducted to reassess the results of Neville and Pugh (1976-1977) and to determine whether the "adaptive" style of good readers applies to both intersentence and intrasentence context. Fourth-grade subjects received a complete passage cloze test and a restricted passage cloze test which consisted of either sentence fragments (replicating Nevill and Pugh) or of complete sentences. The results replicated Neville's and Pugh's findings in that good readers made better use of context than poor readers. In the present study, this effect was clearly specific to within-sentence context. However, further research is needed to determine the extent to which intersentence context facilitates comprehension.

The research reported in this paper was conducted while the first author was at the Center for the Study of Reading and was supported in part by the National Institute of Education under Contract No. US-NIE-C-400-76-0016 and by the Advanced Research Projects Agency under Contract No. N00123-77-C-0622. Requests for reprints should be addressed to Ernest T. Goetz, Department of Educational Psychology, M. T. Harrington Education Center, Texas A & M University, College Station, Texas, 77843.

CS005394

The Use of Context by Good and Poor Readers in a Cloze Test

The image of the skilled reader which has emerged recently is that of a sophisticated problem solver engaged in the systematic selection and implementation of complex strategies (cf. Brown, in press; Flavell, 1978). Thus, for example, it is argued that the skilled reader must be an effective and vigilant comprehension monitor, ever alert to detect comprehension failures. Further, the skilled reader must possess and apply a repetoire of fix-up procedures, such as rereading the noncomprehended text segment or looking back to relevant previously read segments (Allessi, Anderson & Goetz, 1979), in order to effectively remedy detected failures. The term metacognition has been coined to describe such strategic management of cognitive process.

While many of us have become convinced of the crucial role of metacognitive processes in skilled reading, and therefore believe that metacognitive skill is a crucial source of difference between good and poor readers, nearly all of the metacognitive research to date has been directed at memory tasks (see Brown, 1978, for a review). As Brown (in press) pointed out, "There is almost no systematic work on this topic in the domain of effective reading." On the other hand, Perfetti and Lesgold (e.g., 1977) have argued that differences in the speed and accuracy of decoding processes account for most, if not all, of the skill difference between good and poor readers, and can muster a considerable amount of empirical evidence for their position. Clearly the burden of proof rests squarely upon the shoulders of those of us who have argued for the role of metacognitive skill.

It is for this reason that we read with such interest the research of Neville and Pugh (1976-1977). Neville and Pugh thought that a blank in a cloze test would provide a situation analogous to a comprehension failure during normal reading. Their hypothetical analysis of how good and poor readers would handle such a gap is clearly in terms of metacognitive skills:

> (For the good reader) context is used freely; the reader anticipates-probably he sometimes waits for further information before filling a gap; he has an adaptive, sampling type of visual strategy; and he is aware of semantic and syntactic contextual constraints . . . We would expect the poor reader to perform in a rather different way, dealing with each word, or gap, as it appears sequentially . . . (p. 17).

On the basis of this analysis, Neville and Pugh predicted that when performance on a normal written cloze test, in which an entire passage is presented to the reader, was compared with a restricted context cloze test, good readers would show substantial benefits from the context afforded by the normal test. Poor readers on the other hand, would benefit little, if at all, from such context. Neville and Pugh employed two forms of restricted context cloze tests: a listening test in which students listened to a taped reading of the text, with a 10 second pause inserted for each blank, and a "booklet" test in which each blank appeared on a separate page with only those words which immediately preceded it.

Neville and Pugh conducted a study in which each of 130 English fifth-grade students received a full context cloze test and either a booklet or listening cloze test. The tests were prepared from the GAP Reading Comprehension Test (McLeod & Unwin, 1970) which has two equivalent standardized forms. The students were divided into good and poor readers on the basis of their performance on the normal cloze test. A summary of the results is presented in Table 1. The good readers performed much better

on the complete context cloze test than on either the booklet or listening test ($p < .001$). Poor readers, on the other hand, did no better on the full context test than on either of the restricted context tests. Performance on the two restricted context forms was statistically equivalent.

Insert Table 1 about here

Neville and Pugh interpreted their results as confirming their hypothesis that only good readers strategically utilize context in reading. We view their research as being of signal importance because it provides one way of the very few pieces of empirical evidence that supports the metacognitive analysis of good versus poor reader differences. On closer examination, however, there are difficulties with the study which seriously impair its utility. The most serious of these is the manner in which they designated good and poor readers. Partitioning the students on the basis of their performance on the full context cloze test may have biased their results in favor of their hypothesis because of regression to the mean. Assignment to reading levels must be independent of the tests being compared in order for good versus poor comparisions to be valid. A second, less damning, shortcoming was that even if their study had established that good readers made better use of context, their design would make it impossible to determine whether their advantage was in employing context within a sentence, across sentences, or both. This situation occurred because the full context test differed from the booklet and listening tests in the availability of both intrasentence and intersentence context.

The present study was designed to correct these deficiencies. Assignment to reading levels was based on standard reading achievement test scores. The full context cloze test was compared to two restricted context forms in which intersentence and intrasentence context were separated: (1) in sentence booklets, each page of which presented a complete sentence, intrasentence context was intact, but intersentence context was disrupted, (2) in sentence fragment booklets, which replicated Neville's and Pugh's booklet test, both intersentence and intrasentence context were disrupted. The listening test was dropped in the interest of simplicity. This study should lead to a more valid test of differences between good and poor readers in context utilization and a better understanding of such differences, if they are found.

Method

Design

The experiment was a three-way mixed factorial design with reading ability (good vs. poor readers) and booklet format (sentence presentation vs. sentence fragment presentation) as between-subjects factors and context (whole vs. partial passage) as within-subjects factor. Stanford Achievement Test scores were obtained and used to partition the subjects into "good" and "poor" readers. The Stanford Achievement Test was administered in September, three months before the experiment was conducted. The mean grade level equivalents were 4.74 and 2.49 for good and poor readers, respectively.

Subjects

The subjects were 78 fourth-grade students in central Illinois.

Materials

The materials used were Forms B and R of the GAP Reading Comprehension Test, which, though developed in Australia, has been normed in the United States as well as in England. Both forms of the test contain series of short reading passages with approximately every eighth word deleted. The passages in each form represent a considerable range of difficulty, with easier passages occurring first. Form B was not altered and served as the whole passage context materials. Form R was altered in two ways to produce booklets in sentence and in sentence fragment formats, as illustrated in Table 2.

Insert Table 2 about here

The sentence booklet was constructed by presenting each of the 31 sentences on a separate page. The number of blanks per page ranged from 0 to 5, with a mean of 1.35 blanks per page.

Each page of the sentence fragment booklet presented a single blank and its immediately preceding context. Thus, the first page in these booklets presented the text up to and including the first blank; and so on. This replication of Neville's and Pugh's (1976-1977) method resulted in booklets containing 42 pages with an average of 7 words per page. In order to avoid confusion, pages indicating a new story were inserted between all the passages in both the sentence presentation and fragment presentation booklets.

Procedure

The tasks were administered to the children in their classroom areas in an open space school. The students in each of the four areas were randomly assigned to sentence and fragment groups which were then physically separated.

Paraphrasing the directions in the GAP test manual, the experimenters told the children that they would be completing some reading puzzles and gave examples. The children were encouraged to guess when they were not sure of an answer. This strategy was stressed throughout the testing procedure.

The whole passage context cloze test was administered first. The experimenters moved around the room to discourage cheating, and no cheating was observed. After a brief rest period, subjects received either the sentence or the fragment booklet. The directions given stressed that looking back or ahead in the booklets was not allowed and that the children should try to guess whenever they were not sure of an answer. Practice examples in the appopriate booklet format were included in the instructions. Twenty minutes were allowed for each test.

Results

Responses were scored for exact word replacements, as in the study by Neville and Pugh (1976-1977). In accordance with the GAP test manual, misspelled words were counted as correct if the scorer could determine that the exact word was intended, but changes in tense or number were not accepted. A 2 x 2 x 2 analysis of variance on reading ability, booklet format, and context was carried out. All three main effects were significant. Good readers scored higher than poor readers (.451 vs. .273), $F(1,74) = 67.1$, $p < .001$. Students who read sentence booklets scored higher than those who read sentence fragment booklets (.391 vs. .333), $F(1,74) = 7.3$, $p < .01$. Performance was better for the whole than for the partial passages (.395 vs. .330), $F(1,74) = 34.2$, $p < .001$.

The Booklet Format x Context interaction was also significant, $F(1,74) = 13.2$, $p < .001$. Simple main effects tests revealed that for the partial contexts, subjects who received sentence presentation booklets did much better than those who received fragment presentation booklets (.389 vs. 280), $F(1,74) = 20.1$, $p < .001$. For whole passages, booklet format had no effect, $F(1,74) = 1.8$, as expected.

Although the Reading Ability x Context interaction was not significant $F(1,74) < 1$, *a priori* plans to analyze simple main effects were carried out. Both good readers and poor readers did significantly better ($p < .01$) with the whole than partial context. The Reading Ability x Booklet Format interaction did not approach significance, $F(1,74) < 1$.

The significant Reading Ability x Booklet Format x Context interaction, $F(1,74) = 4.75$, $p < .05$, is of special interest. Cell means for the interaction are shown in Table 3. A simple effects test proved the Reading Ability x Context interaction significant $F(1,36) = 45.8$, $p < .001$, for students who read sentence fragment booklets. This result replicates the finding for Neville and Pugh (1976-1977). While the difference between whole passages and sentence fragments was nearly twice as great for good readers, the effect of context was significant for both good readers (whole = .478, partial = .340), $F(1,16) = 32.4$, $p < .001$, and for poor readers (whole = .294, partial = .220), $F(1,20) = 11.5$, $p < .01$. Thus, as Neville and Pugh found, the good readers benefited more from the context provided by whole passages. Unlike Neville's and Pugh's results, however, poor readers also significantly benefited from the additional context. Analysis of semantically appopriate responses (i.e., exact words, synonyms,

and other words which preserved the meaning of the sentence, regardless of number or tense) confirmed this pattern of results. Good readers did much better than poor readers ($p < .001$) with both whole and partial results.

For students who read sentence booklets, the Reading Ability x Context interaction was only marginally significant, $F(1,38) = 3.6$, $p < .08$. Although good readers scored much higher than poor readers ($p < .001$) for both whole passage and sentence contexts, whole passage contexts did not significantly aid good readers (whole = .496, partial = .487), $F(1,20) < 1$. Poor readers, on the other hand, benefited from the extra-sentence context provided by the whole passage (whole = .311, partial = .269), although the effect was only marginally significant $F(1,18) = 3.5$, $p < .1$.

The Format x Context interaction was significant ($p < .001$) for both good and poor readers. The difference between sentence and sentence fragment partial contexts was three times as great for good as for poor readers. Consequently, with partial contexts the effect of booklet format was significant for good readers (sentence = .487, fragment = .340), $F(1,36) = 19.1$, $p < .001$, but failed significance for poor readers (sentence = .269, fragment = .220), $F(1,38) = 2.59$, $p < .1$. As expected, no effect of booklet format on whole passages was observed for either good or poor readers, F's < 1.

Discussion

The results of our study replicate those of Neville and Pugh (1976-1977) on one crucial point: good readers were better at utilizing the context provided by a complete passage than are poor readers. This finding, which was found when the complete passages were compared with fragmentary contexts

(which replicated Neville's and Pugh's booklet condition), obtained whether responses were scored for exact words or for semantic acceptability. Thus, the hypothesis that good readers are more skilled at utilizing context, a metacognitive skill, was supported. This result is important because of the general lack of evidence for the metacognitive hypothesis of reading skill differences and because of problems with the original Neville and Pugh study. It should be noted, however, that in the present study the poor readers also did significantly better with full than with fragmentary contexts, demonstrating context utilization. In contrast, Neville and Pugh found no benefits of context for poor readers. We suspect that their result may have been produced by bias introduced by their method of assigning students to reading levels.

Having established that good readers do make better use of context, we can ask whether their advantage lay in utilizing context within a sentence, between sentences, or both. In the present study, the answer is very clear: good readers were better at utilizing context within the sentence. When the sentence and sentence fragment partial contexts were contrasted, good readers gained much more from the intrasentence context afforded by the sentence booklets than did the poor readers. Surprisingly, our results seem to suggest that poor readers make better use of intersentence context than do good readers: while poor readers did marginally better with complete than with sentence contexts, good readers showed no difference at all. This result, however, did not hold up when semantically acceptable responses were scored. That analysis revealed that intersentence context produced significant, nearly equivalent, gains for both good and poor readers.

We were not surprised by the failure to demonstrate an intersentence context advantage for good readers in the present study. Examination of the GAP Test materials strongly suggested that they would prove an insensitive measure of intersentential processing for two reasons. First, deletions were made in an essentially blind "every-eighth-word" fashion, without regard to whether the contextual support required by a blank was supplied within the sentence, in other sentences, or both. A cloze test in which the deletions are selected because they require intersentential support should prove more sensitive to intersentential processing. Second, the passages themselves were quite brief, and may have contained much less contextual support than longer passages encountered in normal reading. In fact, in some cases the passages consisted of only two or three sentences, presumably minimizing the difference between a single sentence and the whole passage. Finally, a procedural feature may have biased the results against good readers. In the present study, as in the study by Neville and Pugh, partial context versions presented the passage sequentially. If good readers were better at remembering the preceeding pages of the booklet and/or employing that context, then their performance on the partial context form would be enhanced, obscuring context utilization differences. Scrambling sentences within a passage, or even better, between passages should alleviate this difficulty. We have recently completed two studies on the utilization of intersentence context in which we have incorporated these refinements. The results, while not yet completely analyzed, seem to suggest that good readers are in fact more adept at utilizing context beyond the sentence level.

A further limitation of the current research, and that of Neville and Pugh, is that while it clearly shows that good readers benefit more from

context provided within a sentence, it does not unequivocally support the metacognitive skill hypothesis. Alternative explanations are possible. Perhaps poor readers are equally skilled at inspecting a sentence and bringing context to bear when filling in a blank, but they lack the requisite knowledge of the world or of the language for the process to succeed. Clearly, a student who simply doesn't know the word deleted will be unable to fill it in regardless of the skill of his or her metacognitive processes. A motivational hypothesis could also account for the result. Poor readers may be less willing to engage presumably effortful strategies, even if they were in their repetoire. Further research will be required to resolve these matters.

We would like to close with a reminder that our interest is in the role of metacognitive skills in reading, an issue we consider to be of vital theoretical and instructional importance. We have no particular interest in good vs. poor reader differences on cloze tests per se. It is our hope that any knowledge gained from cloze studies will meet with converging evidence from other reading related tasks, and hopefully from "normal" reading itself.

References

Alessi, S. M., Anderson, T. H., & Goetz, E. T. An investigation of lookbacks during study. Discourse Processes, 1979, 2.

Brown, A. L. Knowing when, where, and how to remember: A problem of metacognition. In R. Glaser (Ed.), Advances in instructional psychology. Hillsdale, N.J.: Lawrence Erlbaum Associates, 1978.

Brown, A. L. Metacognitive development and reading. In R. J. Spiro, B. C. Bruce, & W. F. Brewer (Eds.), Theoretical issues in reading comprehension: Perspectives from cognitive psychology, artificial intelligence, linguistics, and education. Hillsdale, N.J.: Lawrence Erlbaum Associates, in press.

Flavell, H. J. Cognitive monitoring. Paper presented at the Conference on Children's Oral Communication Skills, University of Wisconsin, October, 1978.

McLeod, J., & Unwin, D. GAP Reading Comprehension Test. London: Heinemann Educational, 1970.

Neville, M. H., & Pugh, A. K. Context in reading and listening: Variations in approach to cloze tasks. Reading Research Quarterly, 1976-1977, 12, 13-31.

Perfetti, C. A., & Lesgold, A. M. Discourse comprehension and sources of individual differences. In M. Just, & P. Carpenter (Eds.), Cognitive processes in comprehension. Hillsdale, N.J.: Lawrence Erlbaum Associates, 1977.

Stanford achievement tests. New York: Harcourt, Brace & Jovanovich, 1973.

Table 1

Proportion Correct for Good and Poor Readers on Various Cloze Tests

Readers	Test		
	Whole Context	Booklet	Listening
Good	.613	.455	.413
Poor	.267	.289	.266

Note. Neville and Pugh, 1976-1977.

Table 2 - Test Formats

Sentence Fragment Presentation[1]

Tom went to the airport with his mother. There _____ big jet airplans at the airport. "Will _____ be a jet pilot when you grow _____?" mother asked Tom. "No," said Tom. "When _____ am a big man, I will be _____ space man."

Sentence Presentation[1]

Once there was a king who had three sons. _____ was called Hussein, one was called Ali and _____ third son was called Ahmed. The _____ also had a niece who lived _____ them in the palace. She was a very beautiful _____ and all three of the king's _____ fell in love with her.

Whole Passage

Juvenile delinquency in London is very largely a mode _____ week-end dissipation. So long as there _____ neither school nor work, mischief fills the empty hours. Many of the transgressions, it is true, _____ trifling, such as playing games at prohibited _____ or in prohibited places.

[1]Each line represents a separate page of text.

Table 3

Proportion Correct for Good and Poor Readers

Booklet Format	Reading Ability	Context	
		Part	Whole
Sentence Fragment	Good	.340	.478
	Poor	.220	.294
Sentence	Good	.487	.496
	Poor	.269	.311